

# Conclusions - Action items

ALL

**CDF/D0/AD luminosity meeting  
of February 13, 2008**

# Conclusions - Action Items

- After the shutdown the CDF/D0 luminosity ratio has been ranging between 1.08 - 1.10. After introducing alpha bumps though at D0 on Dec. 3, the ratio became 1.068 in store 5780. Recently this ratio drifted close to 1.1 again and it was fixed on February 7 by correcting the dispersion (mainly  $D_x^*$ ) at D0, store 5891. The ratio is now  $\sim 1.02$ .

# Conclusions - Action Items

- Optics measurements performed by the Tevatron group in late January, 2008 (10-15% accuracy) indicated that  $\beta^*$  was 33.3 at CDF and 31.3 cm at D0 and  $D^*$  was 1.3 at CDF and 6.3 cm at D0. With the corrected optics the  $\beta^*$ 's are expected to be 29.0 cm at CDF and 29.1 cm at D0 and the  $D^*$ 's 1.2 cm at CDF and 2.1 cm at D0.
- The Tevatron group would like to see beam width fits from CDF and D0 ( $\beta^*$ 's, emittances as well as z positions in x and y) for stores from 5891 and on in order to verify the expectations.

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- CDF and D0 have compared emittances (from the bw fit) for store 5837, early and late in the store. The values are  $\sim 1 \text{e-7 cm}$  in the beginning and  $\sim 1.6 \text{e-7 cm}$  in the end for CDF, and  $\sim 2.1 \text{e-7 cm}$  in the beginning and  $1.4 \text{e-7 cm}$  in the end for D0. Alex is in the process of calculating if this difference is consistent with the dispersion differences we had at the time at the CDF and D0 IRs.
- The Tevatron group had observed on November 20<sup>th</sup> some correlation between losses (C:LOSTP) and the CDF luminosity measurement when the collimators were retracted and only beam halo should have been affected. In the mean time Yuri demonstrated that the CDF luminosity is unaffected by impressively high beam induced losses (more than 200 kHz in C:LOSTP) on February 7.

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- To understand better the November 20<sup>th</sup> observation the Tevatron group agreed to repeat the test by retracting first the proton and then the pbar collimators and observe the effect this will have on the luminosity measurements at the two IRs. Such tests are already in progress.

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- CDF had traced some instability in the luminosity measurement to bad soldering in the PMT bases and replaced 26 bases during the summer shutdown. The problem is now fixed. The effect on the luminosity measurement was estimated by studying the slope of COT currents vs luminosity before and after the replacement of the bases. It is ~1%.
- The D0 forward muon yields show stability of the system within ~1% during Run IIb. An end of January run, was included in this study as well.

# Conclusions – Action items

- For the time being, the plan is that we will exchange any new information we have on the issues above internally, and decide later on the exact time we will meet as a group.